

(12) UK Patent Application

(19) GB

(11) 2 246 446 (13) A

(43) Date of A publication 29.01.1992

(21) Application No 9104478.4

(22) Date of filing 04.03.1991

(30) Priority data

(31) 9016361

(32) 25.07.1990

(33) GB

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(51) INT CL⁵

G01G 21/28

(52) UK CL (Edition K)

G1W WQ

(56) Documents cited

US 4700793 A

(58) Field of search

UK CL (Edition K) G1W

INT CL⁵ G01G

(54) Draught shield for analytical balances

(57) The invention concerns analytical balances of the kind having a transparent front plate (13), and respective top and side doors (14, 15 & 16), the top and side doors (14, 15 & 16) being individually slidable between a closed condition and an open condition. The top door (14) has a tab (17) which an operator can grip when opening the door, the tab carrying a pair of slidable members each associated with an individual side door (15, 16) and movable by the operator to engage its associated side door so that on movement of the top door (14) the associated side door (15, 16) is moved as well.

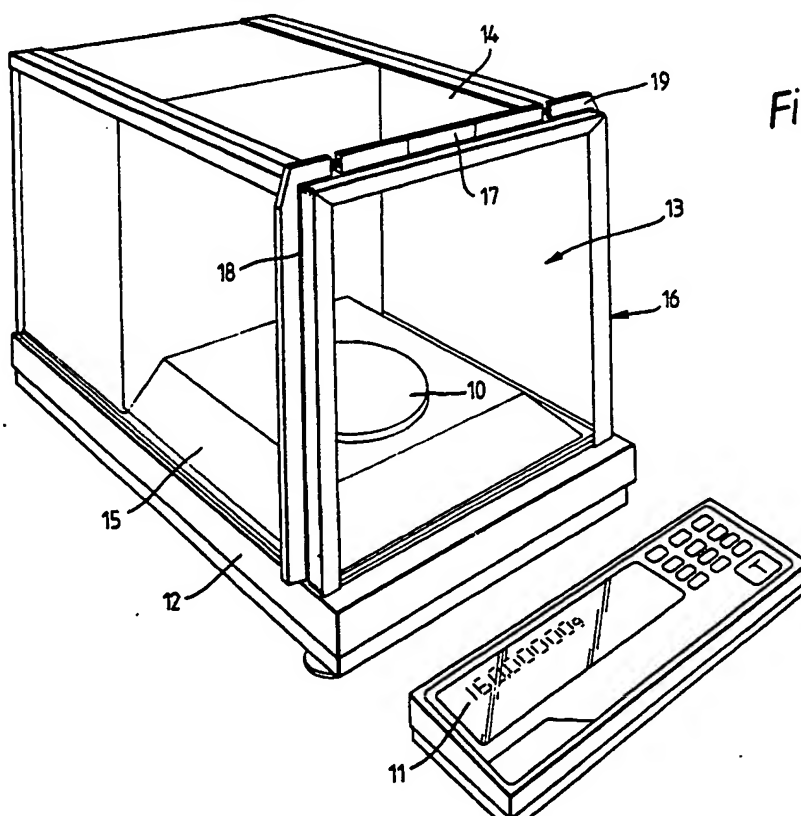


Fig. 1.

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Fig. 1.

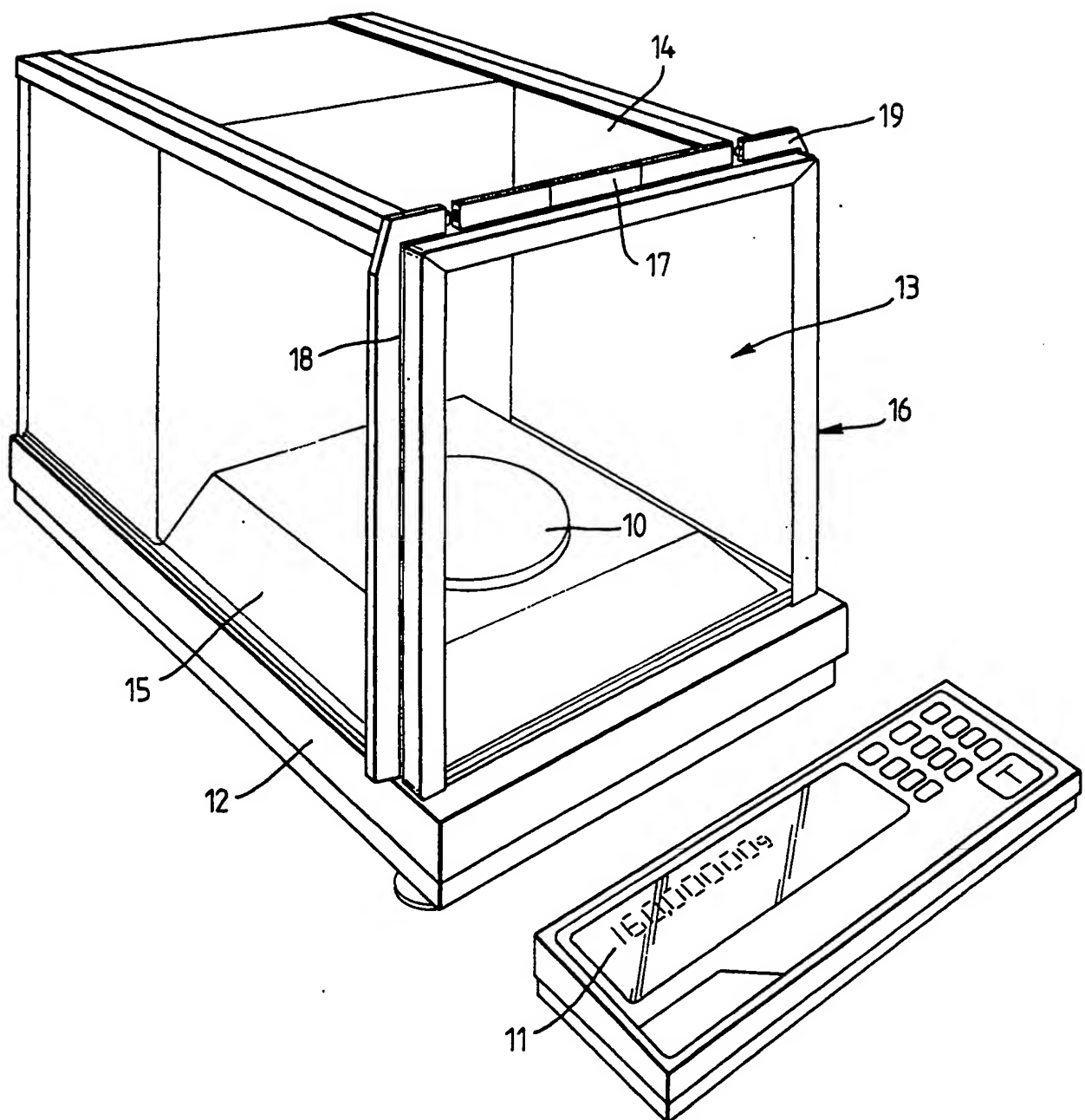
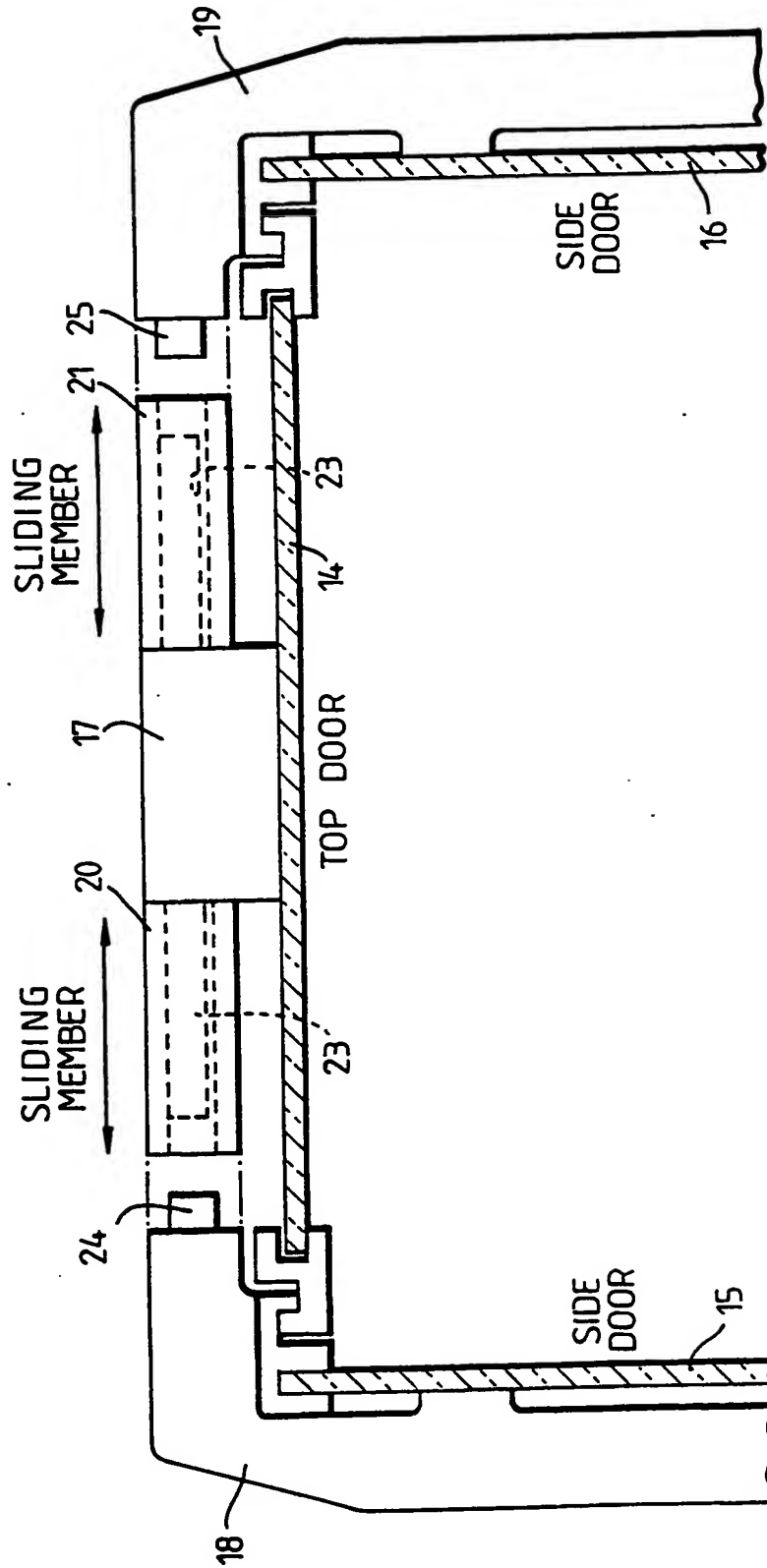


Fig. 2.



DRAUGHT SHIELD FOR ANALYTICAL BALANCES

The present invention concerns analytical balances. These are used to measure weight to extremely high degrees of accuracy, for example to 0.0001 of a gram.

As a result of the requirement for high accuracy it is necessary to exclude the actual weighing operation from any kind of perturbation which might effect the final measurement. One such perturbing factor is the presence of draughts and it has accordingly been traditional for the weighing pan of an analytical scale to be completely enclosed by draft screens.

Current designs of draught shield on analytical balances consist of a front immovable screen and two side doors and a top door that can be retracted by sliding away from the user (either into a rear pod or to project from the rear of the balance), to allow access to the weighing chamber.

They are difficult to use in an efficient manner as the product to be weighed is usually carried to the balance by the operator in the same hand needed to open the door.

Therefore, the operator must first put down the object to enable the chosen door of the balance to be opened with that same hand. Some designs do allow the right hand door to be opened with the left hand and vice versa, but only if certain linkages have been previously set with a free hand. It is important to note that this linkage still needs to be set with the hand that later carries the object to be weighed.

The present invention has for an object to provide an analytical balance in which the above problem is alleviated.

Accordingly the present invention consists in an analytical balance having a transparent front plate, and respective top and side doors, the top and side doors being individually slidable between a closed condition and an open condition, and wherein slidable engagement means are provided which can be moved by an operator so as to link either one of said side doors to said top door whereby the balance can be configured so that either all the doors can be opened or the top door and one of the side doors with a single manual operation.

Preferably the top door has a tab which an operator can grip when opening the door, the tab carrying a pair of slidable members each associated with an individual side door and movable by the operator to engage its associated side door so that on movement of the top door the associated side door is moved as well.

In order that the invention may be more readily understood an embodiment thereof will now be described by way of example and with reference to the accompanying drawings, in which

Figure 1 is a perspective view of an analytical balance having draught screens constituted in accordance with the present invention, and

Figure 2 is an end view of part of the screens of the balance of Figure 1.

Referring now to Figure 1 of the drawings this shows an analytical balance having a weighing pan 10. A panel 11 displays the results of weighing operation and also includes keys for other standard functions. The base 12 of the balance houses a load cell (not shown) which can take a number of different known forms. The

balance has a fixed front plate 13, a top door 14 and side doors 15 and 16. Each of the doors 14, 15 and 16 can be opened independently of the other by being slid on suitable runners away from the fixed front plate 13.

To assist in these opening operations each of the movable doors are provided with respective tabs 17, 18 and 19 which an operator can grip when he wishes to open the appropriate door.

It is also possible for the balance to house an electric motor which can drive the doors between their open and closed states. Such an arrangement is normally used for robotic weighing operations and does not form part of the present invention.

As can be seen from Figure 2 of the drawings tab 17, which is associated with the top door 14, carries a pair of slide members 20, 21. Each member 20 or 21 is slidable over a short internal rail 23 between the position shown in Figure 2 and a position in which it engages a short stub. Thus slide member 20 can be moving to engagement with a stub 24 associated with tab 18, and member 21 to engagement with a stub 25 associated with tab 19.

When slide member 20 and stub 24 are engaged an operator can grip either tab 18 or tab 17 with one hand and in a single operation open both top door 14 and side door 15.

Similarly when slide member 21 is engaged with tab 25 the operator can open top door 14 and side door 16 simultaneously. Obviously it is also possible to select the positions of slide members 20, 21 in such a manner that all doors can be opened simultaneously or separately. It is thus apparent that the opening configuration of the balance can be rapidly and easily set by an operator using only one hand. Once the required configuration has been set the operation of the opening can again be carried out with a single hand, without further adjustment.

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CLAIMS

1. An analytical balance having a transparent front plate, and respective top and side doors, the top and side doors being individually slidable between a closed condition and an open condition, and wherein slidable engagement means are provided which can be moved by an operator so as to link either one of said side doors to said top door whereby the balance can be configured so that either all the doors can be opened or the top door and one of the side doors with a single manual operation.
2. An analytical balance as claimed in Claim 1, wherein the top door has a tab which an operator can grip when opening the door, the tab carrying a pair of slidable members each associated with an individual side door and movable by the operator to engage its associated side door so that on movement of the top door the associated side door is moved as well.
3. An analytical balance as claimed in Claim 2, wherein the top door has a tab from either side of which extends a short rail on which a respective one of the slide members is slidable, and wherein each side door also has a tab, the side door tabs each having a stub which can be engaged with the slide member associated therewith.
4. An analytical balance substantially as hereinbefore described with reference to the accompanying drawings.